

REPORT / RECOMMENDATION



To: Edina Transportation Commission

Agenda Item #: VI. D.

From: Joseph Totten, Traffic Safety Coordinator

Action ☒

Date: April 16, 2015

Discussion ☐

Subject: Traffic Safety Committee Report of April 1, 2015

Information ☐

Action Requested:

Review and recommend Traffic Safety Committee (TSC) Report of Wednesday April 1, 2015 be forwarded to City Council for approval.

Information / Background:

It is not anticipated that residents will be in attendance at the meeting. An overview of the comments from the Edina Transportation Commission (ETC) will be included in the staff report provided to Council for their May 19, 2015 meeting.

Attachments:

Traffic Safety Committee Report for April 1, 2015.

Traffic Safety Preview

Wednesday, April 01, 2015

Section A: Items on which the Traffic Safety Committee recommends action

A1. Request for 50th and France Lunds parking lot exit-only to be enforced

This request comes from a resident who is concerned about the exit from the Lunds parking lot, onto 50th Street, in the 50th and France area. Specifically, westbound vehicles turning left into the lot were of concern, as they disobey Do-Not-Enter signs and cross traffic for this maneuver. One day of video was analyzed during the store's hours of operation, and it was seen that 33 drivers misused the exit. Seven vehicles turned left into the exit, two vehicles turned left from the exit onto 50th (also prohibited by signage and discouraged by design), and 24 vehicles turned right into the parking lot. Those turning right also commonly reversed onto 50th, or otherwise blocked through traffic on 50th as they turned into the lot. The prohibition on right turn from 50th into the parking lot is not well signed, but the design of the roadway highly discourages the movement. 611 drivers used the exit correctly during the same period. Lunds has been contacted and as of March 30th, have indicated an informal inclination to work with the city on this issue, the company's facilities manager should respond soon. 50th Street had an ADT of 10,700 for a count done in 2013.



Photos : Lunds parking lot exit on 50th Street, top is looking west, bottom is looking east.



Map : The exit from Lunds parking lot onto 50th St.

After review, staff recommends altering the signage at this location to prohibit right turns into the parking lot for eastbound, and additional enforcement will be then provided by the police department once the sign has been placed.

A2. Request for further signage on 54th Street to ensure correct use of the neighborhood traffic circles

This request comes from a resident who is concerned about the use of the 54th Street neighborhood traffic circles, vehicles on 54th Street specifically do not yield, and turn in front of the island. One day of video was recorded and analyzed, 27 drivers turned left in front of the



Map : 54th Street at Drew Avenue, controlled by a neighborhood traffic circle.

circle in single passenger vehicles. Larger trucks which may have issues navigating the turn are allowed to turn in front of neighborhood traffic circles and 6 drivers of these vehicles also turned in front of the traffic circle. Only one yielding issue was observed, with few conflicting vehicles reaching the intersection at times that would cause confusion over right-of-way. Other non-typical items observed include two vehicles stopping in the intersection, backing in the intersection (after missing the street the driver wished to exit on), and a pedestrian who walked to the center island of the traffic circle, and walked around its outside a full rotation before continuing across the intersection. Speed was seen as a possible factor, and a radar study of 50 vehicles, taken during midday in ideal conditions, found that the 80th-90th percentile speeds were 16-17 miles per hour. However over 50 percent of all vehicles had speeds below 15 miles per hour (below 15 miles per hour, the radar gun no longer gives values for speeds). The signage in place matches the recommended signage from the Federal Highway Administration.



Photo : 54th Street neighborhood traffic circle at Drew Avenue, the signage shown matches the signage recommended for roundabouts.

After review, staff recommends adding a single chevron sign below the fish-hook sign now in place in the center island (at all four legs of both intersections). This recommendation is conditional, requiring City of Minneapolis approval.

Section B : Items on which the Traffic Safety Committee recommends denial

B I. Request for further control at the intersection of Interlachen Boulevard and Blake Road

This request comes from a resident who uses Blake to get to and from events at the Blake School. The requestor noted that traffic coming north on Blake Road to Interlachen Boulevard often has to stop and wait for an exorbitant amount of time. The requestor asked for all-way stop control to be installed at the intersection, or signal control if possible. A delay study was performed, and found that the delay to northbound vehicles on Blake Road was 19.4 seconds maximum during weekday rush hour periods. This does not meet warrants for all-way stop control or signalization. However, four-hour volume warrants for signalization of the intersection have been found to be met, the warrant will be copied and at the Traffic Safety Committee meeting, as will an Excel of both days analyzed. The congestion might be worse in summer months, however a delay study will be very difficult to conduct during the warmer months due to vegetation in the area blocking sightlines of cameras or staff placed at the intersection to investigate the issue.



Map : Interlachen Boulevard and Blake Road

Sightlines were found to be acceptable in the winter; however leaves on shrubbery may cause issues in warmer months, where only 250 feet of sight distance were clear of brush, whereas the speeds on Interlachen make 410 feet needed for safe left hand turns according to the American Association of State Highway and Transportation Officials in a passenger vehicle.



Photo : Sightlines are currently clear, but leaves on brush may obscure the needed sight distance at the intersection

After review, staff acknowledges that the intersection meets warrants for signalization. However, there is no notable safety issue in this location for vehicular traffic as this is more an issue of inconvenience. Staff will continue to monitor the intersection, and will consider adding signalization or stop control during a reconstruction of the intersection.

Section C : Items on which the Traffic Safety Committee recommends further study.

B2. Request for pedestrian actuation for crosswalk on Valley View Road at Chapel Lane

This request comes from a resident who is concerned for safety during morning hours as school enters session. The concern is that left turning vehicles from westbound Valley View Road to southbound Chapel Lane obstruct the views of children crossing the street. When investigated, a person in the crosswalk was unable to be seen by drivers while they were at the required stopping sight distance, for approximately the central third of the roadway. Further investigation revealed that the intersection meets the City of Edina's warrants



Map : Valley View Road and Chapel Lane



Photo : Chapel Lane at Valley View road, looking west

for crossings, with approximately 25 pedestrians crossing between the hours of 2:30 and 4:30 PM every day. However, mornings had a maximum of 10 crossings between the hours of 7:00 and 9:00 AM. In the morning, 80 out of 598 westbound vehicles turned left at this intersection between 7:00 and 9:00 on March 10th, which was the one day that turning data was collected. Between 7:00 and 8:00 AM there was an average of 1.33 gaps of acceptable length to cross, per five minute interval, which meets warrants for pedestrian actuation. There is a small refuge made from plastic posts in this area, but it does not comply with ADA specifications for a refuge island, and thus was not considered. The intersection of the school's parking lot exit and Valley View Road is controlled by a person during times around school release and entry, but the driveway is approximately 100 feet west of the intersection with the crosswalk in question. A 2014 count found that Valley View Road has an ADT of 7100.

After review, staff concluded that while the signalization of a crosswalk would be warranted, there is the potential for confusion that would be caused by the traffic control flagger at the exit of the school's parking lot if the signal ever contradicted her/his direction. Engineering staff will discuss possible solutions with the District to provide a better walking environment for the students.

D Items : Other Traffic Safety Issues Handled

D1. Requestor asked for traffic data around the intersection of 70th and Cahill. Recent counts were provided.

D2. A resident of Minneapolis called to ask about the specialty crosswalks, specifically the brick imitation thermoplastic. These are no longer being placed by Edina. The requestor was forwarded the contact information for contractors who do this work.

D3. Requestor came into the office for traffic information on Tracy near Benton, with concerns about a child's walk to school. The counts and speeds of Tracy were provided in a spreadsheet and printed for the requestor.

D4. Requestor noted that at night, on the sidewalk, and wearing all dark colors, a woman was difficult to see as she waited for the bus at the intersection of Parklawn Avenue and 76th Street. The lights in this location were repaired after the request was called in, and no further action was requested.

D5. Requestor believes that the signs at the southbound Trunk Highway 100 entrance at Eden Avenue are backwards, and that the lower road should be required to yield as opposed to the upper road. The requestor was referred to MnDOT and told this was their right-of-way, and the City of Edina cannot change traffic control on MnDOT's right of way or highways.

Appendix A : Multi-Way Stop Warrants

The following is from the Minnesota Manual on Uniform Traffic Control Devices

2B.7 Multi-Way Stop Applications

SUPPORT :

Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.

The restrictions on the use of STOP signs described in Section 2B.4 also apply to multi-way stop applications.

GUIDANCE:

The decision to install multi-way stop control should be based on an engineering study. The following criteria should be considered in the engineering study for a multi-way STOP sign installation:

- A. Where traffic control signals are justified, the multiway stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
- B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left turn collisions as well as right-angle collisions.
- C. Minimum volumes:
 1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and
 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
 3. If the 85th-percentile approach speed of the major street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.
- D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Appendix B : Signal Warrants, General and Four-Hour Vehicular Volume

The following is from the Minnesota Manual on Uniform Traffic Control Devices. General signal warrants are as follows:

PART 4. HIGHWAY TRAFFIC SIGNALS Chapter 4B. Traffic Control Signals - General

4B.1 General

SUPPORT:

Words such as pedestrian and bicyclist are used redundantly in selected sections of Part 4 to encourage sensitivity to these elements of "traffic."

Standards for traffic control signals are important because traffic control signals need to attract the attention of a variety of road users, including those who are older, those with impaired vision, as well as those who are fatigued or distracted, or who are not expecting to encounter a signal at a particular location.

4B.2 Basis of Installation or Removal of Traffic Control Signals

STANDARD:

As with the installation of a traffic control signal, a comprehensive investigation and engineering study shall be completed to determine whether to remove or to retain a traffic control signal.

SUPPORT:

The failure to satisfy any warrant is not in itself justification for removal of a signal.

GUIDANCE:

Engineering judgment should be applied in the review of operating traffic control signals to determine whether the type of installation and the timing program meet the current requirements of all forms of traffic.

If changes in traffic patterns eliminate the need for a traffic control signal, consideration should be given to

removing it and replacing it with appropriate alternative traffic control devices, if any are needed.

If the engineering study indicates that the traffic control signal is no longer justified, and a decision is made to remove the signal, removal should be accomplished using the following steps:

- A. Determine the appropriate traffic control to be used after removal of the signal.
- B. Remove any sight-distance restrictions as necessary.
- C. Inform the public of the removal study.
- D. Flash or cover the signal heads for a minimum of 90 days, and install the appropriate stop control or other traffic control devices. All way and flash should not be used unless the intent is to have an all way stop after

the removal of the signal.

- E. Remove the signal if the engineering data collected during the removal study period confirms that the signal is no longer justified.

CAUTION:

Because Items C, D, and E above are not relevant when a temporary traffic control signal (see Section 4D.32) is removed, a temporary traffic control signal may be removed immediately after Items A and B are completed.

Instead of total removal of a traffic control signal, the poles, controller cabinet, and cables may remain in place after removal of the signal heads for continued analysis.

4B.3 Advantages and Disadvantages of Traffic Control Signals

SUPPORT:

When properly used, traffic control signals are valuable devices for the control of vehicular and pedestrian traffic. They assign the right-of-way to the various traffic movements and thereby profoundly influence traffic flow.

Traffic control signals that are properly designed, located, operated, and maintained will have one or more of the following advantages:

- A. They provide for the orderly movement of traffic.
- E. They increase the traffic-handling capacity of the intersection if:
 1. Proper physical layouts and control measures are used, and
 2. The signal operational parameters are reviewed and updated (if needed) on a regular basis (as engineering judgment determines that significant traffic flow and/or land use changes have occurred) to maximize the ability of the traffic control signal to satisfy current traffic demands.
- C. They reduce the frequency and severity of certain types of crashes, especially right-angle collisions.
- D. They are coordinated to provide for continuous or nearly continuous movement of traffic at a definite speed along a given route under favorable conditions.
- E. They are used to interrupt heavy traffic at intervals to permit other traffic, vehicular or pedestrian, to cross.

Traffic control signals are often considered a panacea for all traffic problems at intersections. This belief has led to traffic control signals being installed at many locations where they are not needed, adversely affecting the safety and efficiency of vehicular, bicycle, and pedestrian traffic.

Traffic control signals, even when justified by traffic and roadway conditions, can be ill-designed, ineffectively placed, improperly operated, or poorly maintained. Improper or unjustified traffic control signals can result in one or more of the following disadvantages:

- A. Excessive delay;
- B. Excessive disobedience of the signal indications;
- C. Increased use of less adequate routes as road users attempt to avoid the traffic control signals; and
- D. Significant increases in the frequency of collisions (especially rear-end collisions).

4R.4 Alternatives to Traffic Control Signals

GUIDANCE:

Since vehicular delay and the frequency of some types of crashes are sometimes greater under traffic signal control than under STOP sign control, consideration should be given to providing alternatives to traffic control signals even if one or more of the signal warrants has been satisfied.

OPTION:

These alternatives may include, but are not limited to, the following:

- A. Installing signs along the major street to warn road users approaching the intersection;
- B. Relocating the stop line(s) and making other changes to improve the sight distance at the intersection;
- C. Installing measures designed to reduce speeds on the approaches;
- D. Installing a flashing beacon at the intersection to supplement STOP sign control;
- E. Installing flashing beacons on warning signs in advance of a STOP sign controlled intersection on major- and/or minor-street approaches;
- F. Adding one or more lanes on a minor-street approach to reduce the number of vehicles per lane on the approach;
- G. Revising the geometrics at the intersection to channelize vehicular movements and reduce the time required for a vehicle to complete a movement, which could also assist pedestrians;
- H. Revising the geometrics at the intersection to add pedestrian median refuge islands and/or curb extensions;
- I. Installing roadway lighting if a disproportionate number of crashes occur at night;
- J. Restricting one or more turning movements, perhaps on a time-of-day basis, if alternate routes are available;
- K. If the warrant is satisfied, installing multi-way STOP sign control;

- L. Installing a pedestrian hybrid beacon (see Chapter 4F) or other pedestrian safety features if pedestrian safety is the major concern;
- M. Installing a roundabout; and
- N. Employing other alternatives, depending on conditions at the intersection.

4B.5 Adequate Roadway Capacity

SUPPORT:

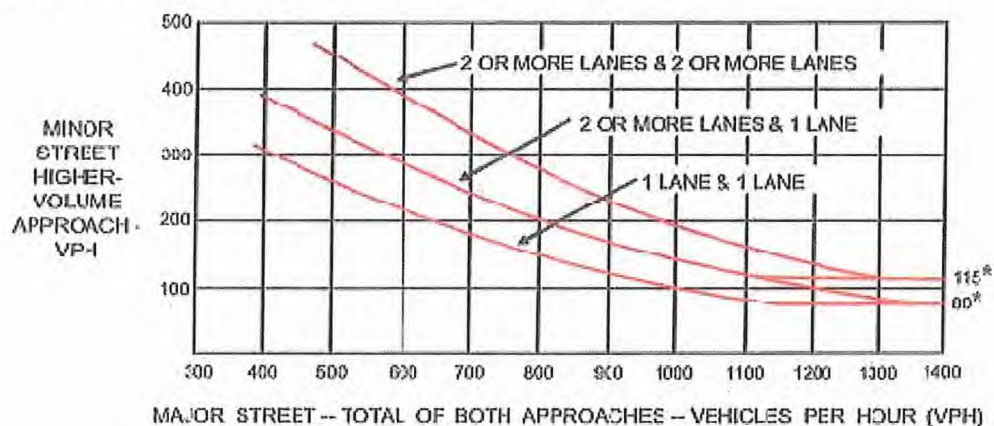
The delays inherent in the alternating assignment of right-of-way at intersections controlled by traffic control signals can frequently be reduced by widening the major roadway, the minor roadway, or both roadways. Widening the minor roadway often benefits the operations on the major roadway, because it reduces the green time that must be assigned to minor-roadway traffic. In urban areas, the effect of widening can be achieved by eliminating parking on intersection approaches. It is desirable to have at least two lanes for moving traffic on each approach to a signalized location. Additional width on the departure side of the intersection as well as on the approach side, will sometimes be needed to clear traffic through the intersection effectively.

GUIDANCE:

Adequate roadway capacity should be provided at a signalized location. Before an intersection is widened, the additional green time pedestrians need to cross the widened roadways should be considered to determine if it will exceed the green time saved through improved vehicular flow.

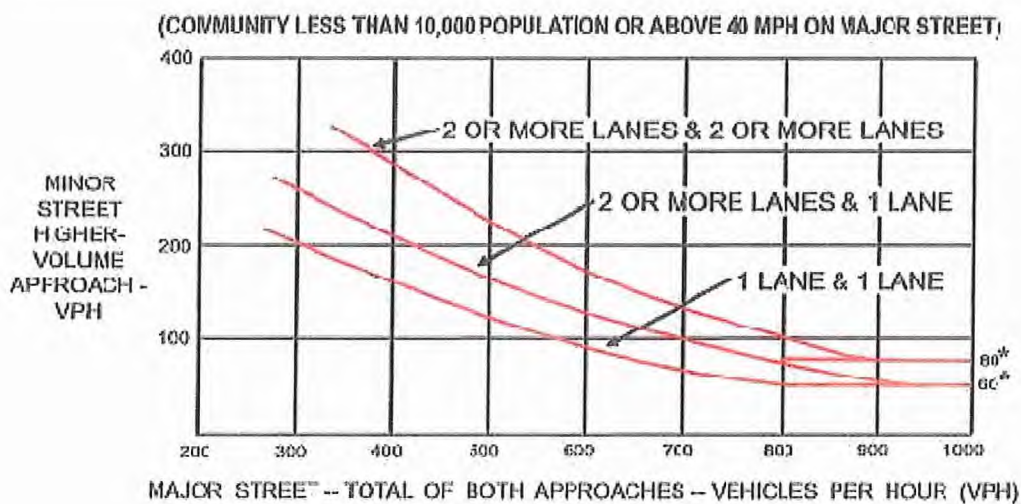
Other methods of increasing the roadway capacity at signalized locations that do not involve roadway widening, such as revisions to the pavement markings and the careful evaluation of proper lane-use assignments (including varying the lane use by time of day), should be considered where appropriate. Such consideration should include evaluation of any impacts that changes to pavement markings and lane assignments will have on bicycle travel.

The following three pages are from the Minnesota Manual on Uniform Traffic Control Devices, and relate to Four-hour and Peak Hour warrants for signals.



*NOTE: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-1. Warrant 2 - Four-Hour Vehicular Volume



*NOTE: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2 - Four-Hour Vehicular Volume (70% Factor)

3. The vehicles per hour given in both of the 80 percent columns of Condition 3 in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.

These major street and minor-street volumes shall be for the same 8 hours for each condition; however, the 8 hours satisfied in Condition A shall not be required to be the same 8 hours satisfied in Condition B. On the minor street the higher volume shall not be required to be on the same approach during each of the 8 hours.

OPTION:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

4C.3 Warrant 1, Four-Hour Vehicular Volume

SUPPORT:

The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

STANDARD:

The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the major street, the higher volume shall not be required to be on the same approach during each of these 4 hours.

OPTION:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

4C.4 Warrant 2, Peak Hour

SUPPORT:

The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street

traffic suffers undue delay when entering or crossing the major street.

STANDARD:

This signal warrant shall be applied only in unusual cases. Such cases include, but are not limited to, office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

- A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach; or 5 vehicle-hours for a two-lane approach; and
2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

- B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

OPTION:

If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to satisfy the criteria in the second category of the Standard.

If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

GUIDANCE:

If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.

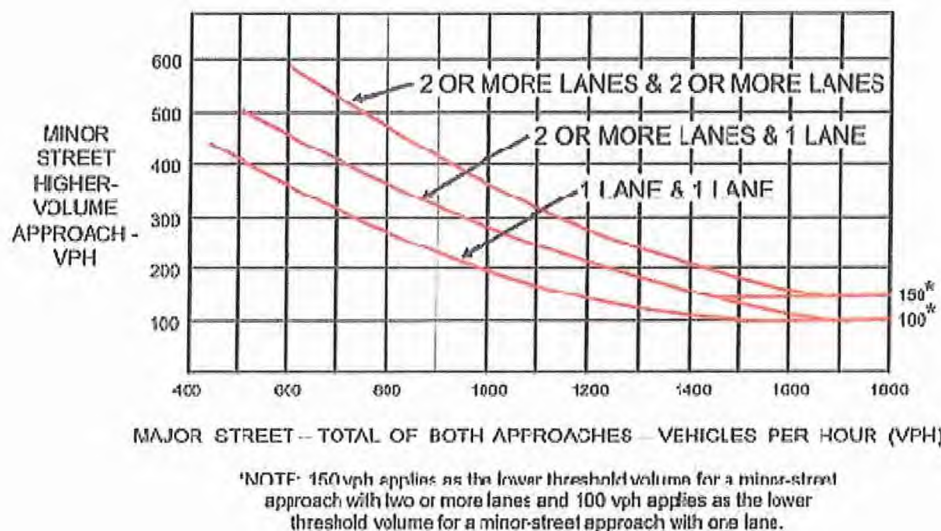


Figure 4C-3. Warrant 3 - Peak Hour

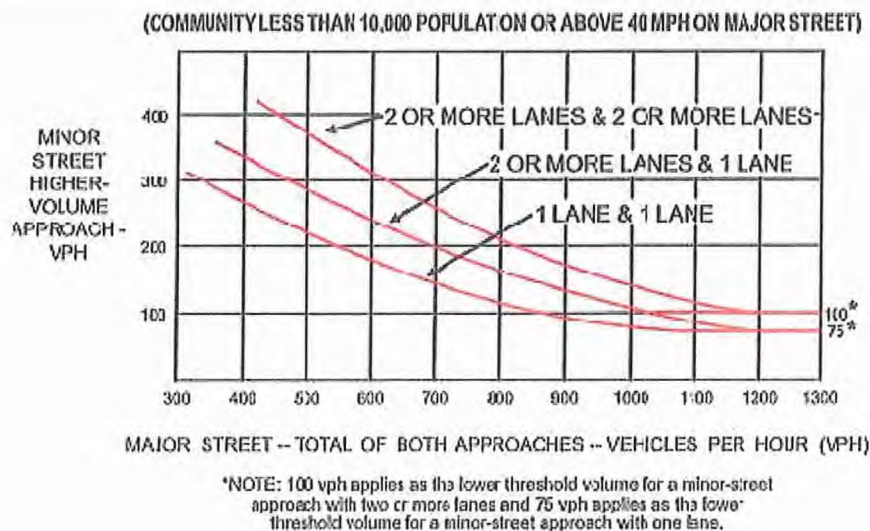


Figure 4C-4. Warrant 3 - Peak Hour (70% Factor)

Appendix C : Interlachen Boulevard and Blake Road

Table 1, 12-hour intersection turning movements count, from 9-9-14

Time	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	Blake Left Turns	Blake Entering (hour long)	Interlachen Entering (hour long)
6:00	0	8	2	5	0	9	3	7	0	38	65	189
6:15	0	9	5	5	0	4	3	13	0	57	101	262
6:30	0	20	6	8	0	4	3	22	0	81	147	382
6:45	0	36	11	9	0	21	7	34	0	122	203	493
7:00	1	46	11	22	0	28	11	24	0	143	237	618
7:15	0	61	18	27	0	28	17	54	0	161	250	787
7:30	0	66	18	23	0	45	19	59	0	191	278	886
7:45	0	108	26	22	0	42	18	61	0	185	267	971
8:00	0	123	32	17	0	46	31	76	0	187	274	962
8:15	0	123	30	25	0	58	27	69	0	167	266	850
8:30	0	114	33	18	0	39	20	80	0	139	231	717
8:45	0	95	27	27	0	44	11	70	1	129	218	575
9:00	0	59	15	29	0	26	27	49	0	102	188	478
9:15	0	46	19	18	0	30	19	32	0	95	172	435
9:30	0	49	11	15		29	12	33	0	87	162	415
9:45	0	37	17	24		17	7	46	0	90	166	391
10:00	0	41	13	20		19	13	40	0	91	159	388
10:15	0	35	18	16		22	9	34	0	93	156	395
10:30	0	33	14	16		32	7	27	0	88	151	399
10:45	0	38	13	16		18	12	41	0	73	149	421
11:00	0	47	10	15		21	11	46	0	77	154	424
11:15	0	40	12	16		17	13	35	0	82	158	431
11:30	0	43	14	29		17	13	32	1	90	166	460
11:45	1	26	30	17		22	22	28	0	90	163	467
12:00	0	49	13	14		26	21	38	0	101	180	486
12:15	0	48	17	16		25	28	36	0	99	189	479
12:30	0	36	14	26		17	27	33	0	96	182	487
12:45	0	41	24	23		33	13	48	0	109	184	502
13:00	0	45	18	25		24	17	34	0	93	167	468
13:15	0	47	26	12		22	23	41	0	96	157	489
13:30	0	52	24	15	0	30	17	32	0	99	162	482
13:45	0	30	18	22	0	17	10	34	0	88	147	470
14:00	0	51	25	12	0	27	24	35	0	91	147	496
14:15	0	48	23	14	0	25	17	42	0	85	148	516
14:30	0	52	17	11	0	19	19	25	0	97	158	551

14:45	0	40	15	19	0	20	19	43	1	119	191	632
15:00	0	58	20	18	1	21	24	53	0	138	213	754
15:15	0	64	27	12	0	37	19	55	0	163	247	802
15:30	0	83	30	22	0	41	26	55	0	174	265	868
15:45	0	65	31	22	0	39	45	99	0	179	271	873
16:00	0	71	23	28	0	46	33	76	0	189	289	876
16:15	0	80	24	19	0	48	35	92	0	186	284	954
16:30	0	81	19	23	0	46	30	69	0	182	289	1040
16:45	0	104	24	30	0	49	29	86	0	186	271	1116
17:00	0	100	43	26	0	43	30	108	0	189	289	1147
17:15	0	117	28	34	0	44	31	140	1	187	284	1095
17:30	0	100	40	29	1	50	27	108	0	143	244	778
17:45	0	100	41	34	0	52	23	110	0			
18:00	0	76	33	37	0	41	32	88	0			

Table 2. 12-hour intersection turning movements count, from 9-11-14, this was done to ensure that these volumes are a normal condition, and thus times when signals were unwarranted on 9-9-14 were not analyzed.

Time	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	EB Right	EB Thru	EB Left	Blake Left Turns	Blake Entering (hour long)	Interlachen Entering (hour long)
6:00	0	6	1	6	0	6	1	9	0	37	68	170
6:15	0	9	0	8	0	8	3	15	0	54	111	243
6:30	0	16	6	9	0	6	0	21	0	69	138	343
6:45	0	34	14	8	0	17	7	28	0	103	184	483
7:00	0	33	12	32	0	23	14	31	0	131	227	619
7:15	0	51	27	20	0	23	13	36	0	147	239	781
7:30	0	87	22	21	0	40	19	55	0	159	246	902
7:45	0	110	29	23	0	45	14	66	0	151	244	934
8:00	0	128	39	28	0	39	24	61	0	143	234	872
8:15	0	129	23	15	0	35	26	70	0	136	225	758
8:30	0	86	29	27	0	32	25	75	0	125	217	619
8:45	0	79	10	21	0	37	19	49	0	116	201	489
9:00	0	51	19	26	0	32	17	51	0	100	179	434
9:15	0	31	18	18	0	24	16	44	0	68	121	296
9:30	0	36	8	20	0	23	5	36	0	44	79	187
9:45	0	48	15	14	1	21	9	30	0	21	36	102
14:30	0	37	16	18	0	23	19	26	0	111	189	512
14:45	0	54	25	21	0	25	17	32	0	138	218	612
15:00	0	56	21	17	0	24	23	33	0	149	237	717

15:15	0	57	31	21	1	39	20	45	0	168	263	789
15:30	0	91	23	20	0	50	27	57	0	187	282	873
15:45	0	62	30	29	0	36	45	96	0	197	297	917
16:00	0	82	17	24	0	43	27	79	0	217	311	941
16:15	0	106	25	22	0	58	31	75	0	231	317	992
16:30	0	120	16	25	0	60	26	80	0	226	315	1039
16:45	0	102	18	23	0	56	26	111	0	228	322	1072
17:00	1	108	19	16	0	57	28	100	0	224	328	1078
17:15	0	96	21	25	0	53	28	139	0	205	313	1026
17:30	0	93	24	30	0	62	39	119	0	152	235	742
17:45	0	102	29	33	0	52	33	99	0			
18:00	0	74	27	20	0	38	21	82	0			